to have a magneto, which adds materially to the cost of a car. If he elects to have only one ignition, and that a magneto, let it be a low tension magneto.

One word more must be said on the subject of dual ignitions. If the motorist decides to have a dual ignition at all, let each be complete in itself, and let no part of the magneto be used for the purposes of the accumulator ignition. Such devices are handy and compact, but it is always possible that it may be just that part of the magneto which has failed or broken, and then the dual ignition comes to nought.

Some high-tension magnetos, however, do not have a secondary winding on the armature, but make use of a separate induction coil; this gets over some of the liability to failure, though it is, of course, less compact. The Eisenman magneto was of this type. But the same coil cannot well be used for the magneto and for the accumulator, as the winding appropriate for the one would not work well with the other, so this involves two separate induction coils if dual ignition is to be used.

(To be continued.)

COST IN THE SECOND YEAR.

"SUNBEAM" 234 sends the following particulars of the cost of upkeep, etc., of his 12-14 Sunbeam car for the second year of its running ending December 31st, 1906. The expense works out at about £4 more than the first year, but mileage and time are increased:

Standing Charges.	£ s. d.	*1906.* £ s. d.	*1905.* £ s. d.
Rent, rates, and taxes ...	47 4 11		
Insurance	15 3 2		
Spares	7 15 4		
Man's wages	54 12 0		
		124 15 5	131 16 9
Running Costs.			
Tyres	56 0 6		
Petrol	25 10 10		
Oil	2 6 11		
Repairs	29 15 0		
Painting	12 8 0		
Ignition	5 18 5		
Sundries	2 16 6		
		134 16 2	121 19 4
		259 11 7	253 16 1
Less share of rent and various returns		20 18 0	19 1 0
Total		238 13 7	234 15 1

1906 compared with 1905.

	1906.	1905.
Mileage ...	6,318	6,183⅞
Petrol (gals.)	394 = 16 14/394 miles per gal.	317 = 19 1/317 miles per gal.
Hours ...	1,631 = 4 67/97 hours per gal.	1,157½ = 3 20/97 hours per gal.
Days ...	324 = 19 41/324 miles per day.	302 = 20 143/302 miles per day.

He adds: In a medical man's car mileage per gallon of petrol is no guide as to what a car can do as to consumption on a long non-stop run. I have therefore given the time actually taken in doing my work and the petrol consumed in that time.

THE ROYAL COMMISSION ON TUBERCULOSIS.

COMPARATIVE HISTOLOGICAL AND BACTERIOLOGICAL INVESTIGATIONS.

VOLUME IV of the Appendix to the Commissioners' Report[1] is devoted to the Comparative Histological and Bacteriological Investigations entrusted to Dr. Eastwood. Dr. Eastwood was instructed by the Commissioners to make histological examinations and comparisons of the morbid processes set up experimentally by tubercle bacilli of bovine and of human origin; to study and compare the cultural characters of bovine and human tubercle bacilli; and to report to them the results of his observations in so far as they have a bearing on the question of the relationship between bovine and human tuberculosis. The observations recorded in his report extend up to the end of August, 1906. The material which he examined was obtained from the animals inoculated by Drs. Cobbett and Griffith.

SUBCUTANEOUS INOCULATIONS OF CULTURES INTO CALVES.

Both bovine and human viruses have been inoculated subcutaneously into calves in doses of 50 mg. All the nineteen bovine viruses which were thus tested produced fatal infection in less than ninety days. The same result was obtained with 14 viruses of human origin. On microscopic examination of the tissues of the calves used for these experiments, it has been found that the lesions produced were typical of acute, rapidly-progressive tuberculosis, and that there was a complete histological identity between the lesions caused by the human and by the bovine viruses. Lesions histologically identical with these were also produced by three additional human viruses which, though originally of low virulence for the bovine, became highly virulent after animal passage. But in addition to these acute lesions there also occurred, in the fatal infections produced both with bovine and with human viruses, lesions of a more chronic type which were surrounded with fibroblasts, contained few bacilli, and generally exhibited many giant cells.

In contrast to the above results, 37 human viruses consistently failed to produce fatal disease in calves when inoculated subcutaneously in doses of 50 mg. The animals were killed, apparently in good health, ninety days after inoculation. In these cases it was found either that dissemination had not occurred or that the disseminated lesions were small and relatively few in number. Histologically, these lesions were often definitely recognizable as tubercles, and tubercle bacilli were sometimes present in them. The tubercles, though obviously of the chronic type and often exhibiting marked retrogressive changes, could not always be described as "healed." In the case of some of them it was impossible to say definitely that the bacilli present were no longer active or that the foci of caseation had ceased to expand.

Further light is thrown on the wide difference in the results of the 50 mg. inoculations with different viruses by a comparative study of the processes of infection in their earlier stages. Calves have been killed at short periods after inoculation and their tissues have been microscoped. Both with highly virulent and with slightly virulent viruses it was found that a certain amount of dissemination readily took place, and bacilli were demonstrated in sections of organs remote from the site of inoculation; but with the former viruses dissemination was much more abundant than with the latter. Dr. Eastwood attaches importance to the comparative study of the local lesions. "The main issue of the experiment is decided in the subcutaneous tissue at the site of inoculation. This tissue is incapable of offering a successful resistance to a highly virulent virus administered in adequate doses. It is, however, capable of offering against a less virulent virus a resistance which, though not completely successful, is successful to a high degree, and at all events is sufficiently successful to prevent the dissemination of the great proportion of the inoculated material, and, consequently, to prevent the reinforcement from this source of the bacilli which have been disseminated." Furthermore, it is found that in the course of a few weeks the fibrous barrier formed at the local lesion round this less virulent material has become completely impermeable. "The bulk of the inoculated culture, in fact, is as much external to the body as it would be if it were enclosed within a test tube."

Certain viruses, both human and bovine, which had been found virulent in doses of 50 mg. and by other tests, were also tested upon calves in doses of 10 mg. Thirty-nine out of fifty-five of these experiments yielded fatal results in less than ninety days, and the lesions produced in these instances were found to resemble, histologically, the lesions produced by the fatal 50 mg. inoculations. The remaining sixteen calves survived the ninety days' time limit and were then killed.

The lesions found in these sixteen animals exhibit very great variety in different cases. This variation ranges from lesions which are nearly as severe as those found in the fatal cases to lesions which are small and more or less retrogressive, resembling lesions produced by the inoculation of 50 mg. of viruses of low virulence.

[1] Second Interim Report of the Royal Commission appointed to inquire into the Relations of Human and Animal Tuberculosis, Part II, Appendix, vol. iv. Comparative Histological and Bacteriological Investigations. By Arthur Eastwood, M.D. (292 pages, together with 8 charts.)

The general result of the whole of the above-mentioned histological investigations is to emphasize two main points: "(1) The marked difference in the severity of the morbid process produced by different viruses; (2) the underlying histological unity which characterizes all these processes, from the mildest to the most severe, as typical of tuberculosis."

THE VIRULENCE OF CULTURES FOR RABBITS.

In addition to calves, rabbits have been used upon a very large scale for the purpose of testing the virulence of cultures, and a series of observations has been made by Dr. Eastwood on the histology of the lesions produced. He summarizes his results as follows:

1. Cultures which are highly virulent for the bovine are also highly virulent for the rabbit, and the histological characters of the lesions produced by them in the rabbit are the same whether the bacilli are of bovine or of human origin.
2. Those bacilli of human origin which are of low virulence for the bovine are also of relatively low virulence for the rabbit. The only virus which may possibly be regarded as an exception to this rule is H 53 D.H. This virus, derived from a case of lupus, is of high virulence for the rabbit but of relatively low virulence for the bovine. . . .
3. The bacilli of low virulence for the bovine are, however, capable of producing tuberculosis in the rabbit. The morbid process set up, though of much less severity—and, when progressive, of much slower course—is the same in kind as the morbid process set up by more virulent bacilli.

ADDITIONAL OBSERVATIONS ON BOVINE LESIONS.

In addition to the virulence tests in which cultures were employed, other experiments have been performed on bovines for various purposes. A large number of animals have been inoculated subcutaneously with bacilli contained in emulsions of animal or human tissue; the bacilli have also been introduced by intravenous injection, by feeding, sometimes by intramammary inoculation, and occasionally by intraperitoneal inoculation. In nearly all of these experiments much smaller doses of bacilli were employed than in the inoculations made for testing the virulence of cultures, and lesions presenting much diversity were obtained in different cases. An extensive histological study has been made of the material thus provided, and various points of interest are noted concerning different phases of the morbid process in the bovine, the relation of the tubercles to the vascular system, and the occasional association of abundant multiplication of the bacilli with relatively little tissue destruction.

In a few instances human viruses, of low virulence to the bovine when inoculated subcutaneously, were introduced into calves intravenously. In some of these cases the animals died in a few weeks, and tubercle bacilli were found to be swarming all over the body, though no lesions were produced which could be regarded as typical of tuberculosis. In other cases the animals were found to be more resistant; and occasionally "typical tuberculosis, histologically of a chronic type, has been produced in all the organs of the body."

LESIONS PRODUCED IN ANTHROPOID APES AND MONKEYS.

Experiments made by feeding, by subcutaneous inoculation, and by intravenous inoculation, have shown that anthropoid apes and monkeys are highly susceptible to tuberculosis. Histologically examined the lesions produced, though varying in severity in different cases, are typical of tuberculosis. Comparisons have been made between the pathogenicity of different viruses—namely, (1) bovine viruses, which are of high virulence to the bovine and rabbit; (2) human viruses of equally high virulence to bovines and rabbits; and (3) human viruses of much lower virulence. But histologically as well as clinically it has been found that anthropoids and monkeys are so highly susceptible to the disease that all three classes of viruses are capable of producing in them lesions of marked severity. There is no evidence that (3) are of greater virulence for either anthropoids or monkeys than (1) or (2). The susceptibility of these animals to (3) cannot be attributed to a selective action of these particular bacilli for this type of animal.

Subcutaneous and intravenous inoculations are more certain methods of producing severe disease than feeding. With regard to the feeding experiments, which are of especial importance in so far as these animals may be considered to be representative of man, Dr. Eastwood writes as follows:

Dissemination generally occurs and lesions are usually present in the lungs; in fact, the incidence of the disease is often particularly severe upon these organs. But the lesions found in these and other distant organs differ very considerably in respect both of their numbers and their histological characters. Sometimes they are scanty and not obviously progressive; at other times they are more numerous, and, though not of the "chronic" type, exhibit more or less decisive evidence of progression; and at other times, again, a distinctly acute type of tuberculosis has been produced.

Comparing the diseased tissues of anthropoids and bovines, Dr. Eastwood writes:

My histological work confirms the evidence that the susceptibility of the anthropoid to tuberculosis is intrinsically higher than that of the bovine. Taking the anthropoid as the animal most nearly related to man, the inference is indicated that human susceptibility to this disease is also greater in degree than that of the bovine.

LESIONS PRODUCED IN SWINE.

Disseminated tuberculosis has been readily produced by feeding with bovine bacilli, and it is noteworthy that the lungs have generally been affected.

The lesions produced in these feeding experiments are in the majority of cases discrete and of a chronic type, being sometimes apparently retrogressive, and sometimes slowly progressive. Less frequently, a much more extensive disease has been produced, and the lesions are characteristic of a severe infection.

When inoculated subcutaneously, bacilli of low virulence for the bovine and rabbit, as well as bacilli of high virulence for these two species of animals, produce disseminated lesions in the pig, but the effect of the latter class of bacilli is much the more severe.

A histological study of the early stages of infection in the pig has been made, and shows that dissemination of bacilli takes place rapidly after subcutaneous inoculation. These results, together with similar observations made on the bovine, show, in the opinion of the author, that "the old theories concerning the resistance offered by the lymphatic glands to the spread of tuberculosis need revision."

EXPERIMENTAL TUBERCULOSIS IN OTHER ANIMALS.

In goats severe progressive disease has been obtained both by subcutaneous inoculation and by feeding. The viruses producing these results were sometimes bovine and sometimes of human origin, but of high virulence for the bovine and rabbit. In histological characters the lesions caused by these two classes of viruses were found to be identical. Human viruses of low virulence for the bovine produced relatively slight disease in the goat.

In dogs, when the bacilli are administered by feeding, they rapidly gain access to the lungs, and there set up lesions which are usually not of a very severe type. A much more acute type of disease has been produced by intraperitoneal inoculation, in one case with a typical bovine virus and in another case with a human virus of low virulence for the bovine. Most of the feeding experiments were performed with bovine bacilli, but in one instance a human bacillus of low bovine virulence produced disseminated disease of moderate severity. In sections from the tissues of some animals it was noted that the bacilli had multiplied very abundantly, but with the production of a relatively small amount of tissue destruction.

Cats have been sometimes fed and in other experiments inoculated with bovine bacilli. In some cases it was found that histologically typical tubercles were produced; in others, the tissues were swarming with bacilli but no typical tubercles had been formed.

Histological observations conducted upon rats show that the rat exhibits a remarkable degree of tolerance towards the tubercle bacillus, both bovine and human. "Bacilli may be swarming all over the body, although the amount of tissue damage is extremely slight. Their habit of multiplying within the tissue cells is very noticeable. But in order to propagate the bacillus within the rat it seems necessary, in most cases, to inoculate very large doses. Moreover the bacilli do not induce a morbid process which can be histologically described as tuberculosis." All the viruses investigated, including those of low virulence for the bovine, were found, under favourable circumstances, to multiply freely in the rat.

THE DIFFERENTIATION AND CLASSIFICATION OF CULTURES.

In his work on comparative bacteriology Dr. Eastwood has studied and compared the cultural characters of the viruses employed in the experiments. He used for the starting point of his observations cultures which were provided for him by his colleagues as soon as possible after their isolation from animal tissues. All these cultures he has kept up on pure serum. For the purpose of differentiating cultural characters he has examined the subcultures made from serum on broth, glycerine-agar, and potato. Of these last three media he regards glycerine-agar as the most important and potato the least, but he considers that the three taken together help to control each other and give more reliable information than any one taken alone. As a basis for classification he therefore takes the combined characters which his cultures exhibit on broth, glycerine-agar, and potato.

Following this principle, he has arranged his strains of bacilli in order according to their capacity for growth on these media, and commencing the series with those strains which grow least favourably. He attaches high importance to the fact that, when arranged in this way, the strains present one continuous and absolutely unbroken series, passing by gradual and only just perceptible stages of transition from the top of the series, containing the strains which grow with greatest difficulty, down to the bottom of the series, where are found the strains which grow with greatest luxuriance. As the series makes a very lengthy list, it has been divided up for the purpose of convenience into five "grades." This subdivision makes it easy to indicate approximately the position in the series of any particular strain by referring to it as belonging to a certain "grade."

THE COMPARISON OF BOVINE AND HUMAN STRAINS.

Following this classification, the bovine and the human strains are arranged, for the purpose of comparison, in parallel columns, cultures identical in character being placed opposite each other. Taking first the strains which show no marked evidence of modification, even when they have been subjected to experimental animal passage, it is found that in the upper part of the series (Grades I to III) there is an almost complete parallelism between the bovine and the human strains, whilst the unmodified strains, which grow more luxuriantly, classed in Grades IV and V, are all of human origin. Dr. Eastwood comments upon the significance of this result:

> The unmodified strains which are enumerated in Grades I to III provide in themselves, and independently of any reference to or contrast with the strains enumerated in Grades IV and V, a complete proof that, judged by the criterion of cultural characters, the bovine bacillus is capable of infecting man. The bovine bacilli, in the left hand columns, are representative of the bovine bacillus as usually met with; and the human bacilli, in the right hand columns, which are identical with these, have, in the majority of cases, produced fatal tuberculosis in the human subject. Moreover, this identity of cultural characters is confirmed by identity of experimental virulence.

Certain strains where modification has followed as the result of animal passage are also considered. Five bovine strains show a decided modification in the direction of increased luxuriance.

> In two instances this increased luxuriance has brought the strain down into Grade IV—a grade where no unmodified bovine strains occur.

And eleven cultures isolated from animals inoculated with material ultimately derived from one or other of three human viruses also show a marked change, the modification being in every case in the direction of diminished luxuriance of growth.

> If these modified human strains be regarded from the comparative standpoint, the important fact is established that human viruses, growing with the high degree of luxuriance exhibited in Grades IV and V, are capable, under favourable animal experiment, of acquiring cultural characters identical with those of the unmodified bovine strains classed in Grade I.

Modification by animal passage, therefore, breaks down the distinction between viruses culturally identical with, and different from, viruses of known bovine origin.

THE RELATION OF CULTURAL CHARACTERS TO EXPERIMENTAL VIRULENCE FOR BOVINES.

With the majority of strains there is a general correspondence between cultural characters and virulence for the bovine, in the sense that those strains which grow poorly on artificial media other than serum are highly virulent, whilst those which grow abundantly on all the artificial media employed are of much lower virulence. But this rule is only roughly true; it needs modification, and there are marked exceptions to it. The strains classed in Grade III grow much more abundantly than the strains in Grade I, but many of the former have been found as virulent as the latter. Again, bacilli virulent for the bovine have in certain instances been found to grow so well on artificial media that their cultural characters were those of Grade IV and Grade V. Examples are also quoted illustrating both instability of virulence and instability of cultural characters. In summarizing these results Dr. Eastwood remarks:

> These exceptional cases all exhibit, though in different ways, the characteristic of bacteriological instability. This feature is obviously of high significance in its bearing on the question as to the closeness of relationship between the apparently more stable viruses which diverge from one another in cultural and pathogenic properties.

Dr. Eastwood's results do not coincide with the recent theory that mammalian tubercle bacilli are divisible into two sharply-distinguished and widely separable "types": (1) the *bovine type*, which grows very scantily on culture media, and is highly virulent for calves; and (2) the *human type*, which grows very abundantly on culture media, and is of very low virulence for calves. He illustrates his reasons for disagreeing with this theory by means of a series of charts (Charts II to VIII), which are constructed according to the ordinary mathematical method of expressing variations in the relation between two factors (degree of virulence and degree of cultural luxuriance) by measuring off ordinates and abscissae. Commencing with a zero point at the lower left hand corner of each chart, virulence is measured vertically, and increases from below upwards; commencing from the same zero point, cultural abundance is measured horizontally, and increases from left to right. According to the "two types" theory, the features of viruses belonging to the "bovine" type would all be exhibited by a short transverse line, which would be near the top of the chart (high virulence), and would be close to the left hand side (scanty cultural growth); whilst the "human" type of viruses would be represented by a short transverse line near the bottom of the chart (low virulence), and close to the right hand side (abundant cultural growth). The rest of the chart would be blank. But when the experiments of the present Commission are charted on this principle, the results are very different.

1. The chart illustrating the 50 mg. experiments with cultures shows a wide gap vertically (difference between highly virulent and less virulent cultures), but the two horizontal lines are irregular, lengthy, and nearly overlap (wide variations in cultural characters).
2. The level of the "virulent" line descends when the virulent viruses are tested in doses of 10 mg.
3. When viruses of both high and low virulence are tested in the form of tissue emulsions in various doses, the "virulent" line is very irregular, and often falls to the level of the "non-virulent" line.
4. When the experiments illustrating modification as the result of animal passage are charted, the gap is completely bridged between the two extremes of high virulence with paucity of growth on culture and low virulence with abundant growth on culture.
5. When the results of the preceding charts are superimposed on one another, a separation into "two types" is seen to be impossible.

THE NUTRITIVE PROPERTIES OF VARIOUS LIQUID MEDIA.

The preceding results of Dr. Eastwood's bacteriological investigations indicate that the differences in cultural characters which have been observed in the viruses examined are merely differences in degree of luxuriance on particular media. There was therefore no reason for expecting that an application of the "physiological method," which has been found useful in the differentiation of various nearly-allied bacteria, would bring out any marked "physiological" differences between strains of mammalian tubercle bacilli. But, on the provisional hypothesis that such physiological differences might exist, he has conducted a series of experiments in which the bacilli, both bovine and human, have been grown on a variety of liquid media in which one or other of various

alcohols, sugars, and other bodies has been used as a substitute for glycerine. The main result of this investigation has been negative. Though these special media serve to bring out various points of difference between various strains of bacilli, "these differences add very little which is new or important to the differences already established by the use of other media." Dr. Eastwood also refers to and criticizes the work of Theobald Smith, who endeavours to differentiate between "human" and "bovine" bacilli by estimations of the change of reaction in the acid or alkaline direction which these organisms bring about when grown upon glycerine broth.

THE MICROSCOPIC CHARACTERS OF TUBERCLE BACILLI.

The microscopic characters of human and bovine tubercle bacilli have been examined and compared. The morphology of the bacilli when grown on various culture media has been recorded in detail, and attention has also been paid to the characters of the bacilli as they occur in animal tissues. On artificial media there appears to be "a tendency for the bacillus to express by its morphological condition the nutritive influence of the particular medium upon which it is growing"; but the diversity in morphological features is very great, and does not provide any reliable basis for differentiation of the organisms. Also, with regard to the morphology of bacilli found in living tissues, Dr. Eastwood finds that "morphological appearances cannot be regarded as a reliable guide to diagnosis."

GENERAL CONCLUSIONS.

The following are the general conclusions drawn by Dr. Eastwood:

The general result of my histological work is to emphasize the underlying unity of the morbid processes produced experimentally by infection with every variety of human and bovine tubercle bacillus. These processes show very marked differences in severity, dependent partly upon the dose and the virulence of the bacilli introduced, and partly upon the susceptibility of the animals selected for experiment. But even when animals of high resistance, such as calves, are inoculated with bacilli of relatively low virulence, lesions are frequently produced in situations remote from the site of inoculation, which are typical tubercles and are comparable to the lesions produced in bovines by bacilli of high virulence, when the experimental conditions are such as to favour the resisting powers of the animal. . . . Finally, when highly-susceptible animals are used—such as anthropoid apes and monkeys—lesions not only of the more chronic but also of the more acute types appear to be produced with almost equal readiness by these less virulent bacilli.

The method of inoculating 50 mg. of culture subcutaneously into calves is of great diagnostic value in bringing out differences of virulence. . . . But a single diagnostic test, however useful, only provides one out of many items of information which are requisite for the purpose of making an adequate biological study. . . . It is obviously necessary to take into consideration all the evidence available concerning the morbid processes induced by the tubercle bacillus when introduced into the animal body (1) by different methods, (2) in different doses, and (3) into different species of animals.

When these considerations are taken into account, the unity of the morbid process induced is made clear.

Corresponding with the underlying unity of the morbid processes which these various tubercle bacilli induce, there is a general resemblance in the characters which their growths exhibit on various artificial media. They all grow in the same way, though they differ markedly in the degree of cultural luxuriance which they exhibit; and between the extremes, the viruses which grow very scantily and slowly, and the viruses which grow readily and abundantly, every intermediate degree of cultural capacity can be found; just as, histologically, numerous intermediate types of the tuberculous process are demonstrable between the chronic or retrogressive and the acute and rapidly progressive.

After laying emphasis on the stability of growth which usually characterizes the tubercle bacillus, Dr. Eastwood proceeds:

At the same time, there is interesting and very important evidence that the cultural and pathogenic characters of at least some of the viruses which I have investigated are not absolutely fixed. Instances have been recorded where there has been:

1. A diminution in virulence.
2. An increase of virulence.
3. A diminution in cultural luxuriance.
4. An increase in cultural luxuriance.
5. The association of relatively low cultural luxuriance with relatively low virulence for the bovine.
6. The association of relatively high cultural luxuriance with high virulence for the bovine and rabbit.

These examples, then, illustrate the variability and capacity for modification of the tubercle bacillus.

From the evidence provided, illustrative of both pathogenic and cultural instability, he finds strong reasons for the assumption that

during the course of long residence in the human body a bacillus, originally of bovine origin, might experience a modification of some of those characteristics which are met with in bacilli freshly isolated from the bovine, and that owing to this modification it might be indistinguishable from bacilli derived from previous cases of human disease.

THE IRISH MEDICAL SCHOOLS AND GRADUATES' ASSOCIATION.

ANNUAL MEETING.

THE thirtieth annual meeting of the Irish Medical Schools and Graduates' Association was held in London on March 16th. The returns regarding elections to officerships did not show much change; Sir John Moore succeeded Dr. E. Irwin Scott as President, but Dr. J. H. Swanton and Dr. Kenneth Frazer remain respectively Chairman and Vice-Chairman of Council, and Drs. T. Hobbs Crampton and W. Douglas and Mr. E. Canny Ryall continue to be Honorary Secretaries. The Vice-Presidents elected for the year were Sir James Dick, Sir William Whitla, and Drs. Macnaughton Jones and E. Irwin Scott. The financial position of the Association was stated to be satisfactory, and the resignation of his office by Dr. James Stewart was recorded with regret. For nearly twenty-two years he had acted as Honorary Provincial Secretary, and in that position had, by his zeal and energy, done much to promote the welfare of the Association. The remaining incident was the acceptance of a badge to be worn by the President, which has been designed and made by Mr. W. Booth Pearsall, a member of the Council. It is of enamel work in the form of a small shield surrounded by the motto of the Association. The motto encloses a design of shamrocks on a blue background representing the sea, the centre being occupied by the red cross of St. Patrick on a white ground.

FESTIVAL DINNER.

The St. Patrick's Day dinner was held the same evening at the Hotel Cecil. About half those present were ladies, and the toasts being interspersed with music, the evening proved thoroughly enjoyable. The principal guests were the Right Hon. Sir Albert Henry Hime and Sir A. E. Wright, while Sir John Moore took the head of the table, having as Vice-Chairmen Drs. Swanton, Kenneth Frazer, Bulger, Crampton, Dawson, Mr. E. Canny Ryall, and Colonels A. M'Donnell and J. Moorhead.

The chief event of the evening was the presentation of the Arnott Memorial Medal to Sir A. E. Wright. He was introduced to the Chairman by Dr. CRAMPTON, who explained the grounds on which this honour can be awarded. In earlier years the recipient had been usually one who had performed some heroic or distinguished act in the performance of medical duty; on the present occasion it was allotted in recognition of the services rendered by Sir A. E. Wright in pathological research. The toast of "Our Defenders" was proposed in an eloquent speech by Dr. Macnaughton Jones; the fourth leaf of the shamrock, he said, was duty, and in the performance of that, both in the army and navy, Irish medical graduates had ever been to the fore. The toast was acknowledged by Admiral Sir E. Seymour, Colonel Arthur, and Surgeon-Captain R. Jocelyn-Swan. Dr. J. A. Macdonald, Chairman of Representative Meetings, British Medical Association, proposed a toast to "The Guests," bidding them "Cead mille failthe." The last formal toast was that to "The Association"; proposed by Mr. A. Shirley Benn, L.C.C., it was acknowledged by Sir John Moore, who said that the Association was flourishing in point of membership and fulfilling the purposes for which it was created—the promotion of good fellowship and the interests of Irish medical graduates in their professional career; many more hospital appointments in England were now thrown open to them than formerly. Active attention was being paid to the position of Irish Poor-law medical officers, and all hoped that whatever might be done with regard to a new university no step would be taken which would imperil those which they possessed—one with the prestige of three centuries behind it and another which in the comparatively short span of its existence had already achieved a high reputation.